# **CLAIMS:**

1. An X-ray bulb comprising:

a bulb envelope;

a bulb coating disposed on at least a part of a surface of the bulb envelope, wherein the bulb coating is configured to form a focusing surface; and

a target configured to rotate about an axis such that a varying portion of the target passes through a focal point of the focusing surface.

- 2. The X-ray bulb of claim 1, wherein the axis is geared to rotate based upon the motion of the X-ray bulb about a volume to be imaged.
- 3. The X-ray bulb of claim 1, wherein the bulb coating is disposed on an interior surface of the bulb envelope.
- 4. The X-ray bulb of claim 1, wherein the target comprises at least one of a metal and a metal alloy.
- 5. The X-ray bulb of claim 1, wherein the target comprises a metal having an atomic number of at least about 40.
  - 6. The X-ray bulb of claim 1, wherein the bulb envelope comprises glass.

- 7. The X-ray bulb of claim 1, wherein the bulb envelope comprises a laser transparent material.
- 8. The X-ray bulb of claim 1, wherein the bulb envelope comprises a laser transparent polymer.
- 9. The X-ray bulb of claim 1, wherein at least a partial atmosphere of an inert gas is within the bulb envelope.
- 10. The X-ray bulb of claim 1, wherein the bulb coating comprises at least one of a metal and a dielectric material.
  - 11. An imaging system comprising:

one or more X-ray bulbs configured to emit X-rays at different locations relative to an imaging volume, each X-ray bulb comprising:

a bulb envelope;

a bulb coating disposed on at least a part of a surface of the bulb envelope, wherein the bulb coating is configured to form a focusing surface; and

a target configured to rotate about an axis such that a varying portion of the target passes through a focal point of the focusing surface;

a laser source configured to generate a laser beam; and

a laser targeting system configured to focus the laser beam upon one of the bulb coatings at a time.

- 12. The imaging system of claim 11, further comprising a motion subsystem configured to move the one or more X-ray bulbs along an imaging trajectory.
- 13. The imaging system of claim 12, wherein the motion subsystem is configured to move the one or more X-ray bulbs along a tomosynthesis imaging trajectory.
- 14. The imaging system of claim 12, wherein the motion subsystem is configured to move the one or more X-ray bulbs by moving a CT gantry.
- 15 The imaging system of claim 11, wherein the imaging volume comprises a tomosynthesis imaging volume.
- 16. The imaging system of claim 11, wherein the imaging volume comprises a CT bore volume.
- 17. The imaging system of claim 11, wherein the one or more X-ray bulbs comprise a plurality of X-ray bulbs positioned generally around at least a portion of the imaging volume.

- 18. The imaging system of claim 11, wherein the one or more X-ray bulbs comprise a plurality of X-ray bulbs positioned at substantially equal intervals about the imaging volume.
- 19. The imaging system of claim 11, further comprising one or more detector arrays disposed about the imaging volume such that X-rays emitted by the one or more X-ray bulbs impact the one or more detector arrays.
- 20. The imaging system of claim 11, wherein a respective axis is geared to rotate based upon the motion of the respective X-ray bulb about the imaging volume.
- 21. The imaging system of claim 11, wherein the laser targeting system comprises a two-axis galvanometer.
- 22. The imaging system of claim 11, wherein the laser source comprises at least a laser oscillator and a laser amplifier.
  - 23. A method for irradiating a volume, the method comprising:

moving an X-ray bulb relative to a volume to be imaged, the X-ray bulb comprising a target configured to rotate about an axis such that a varying portion of the target passes through a focal point of a focusing surface formed by a bulb coating; and

generating an X-ray producing plasma by focusing a laser beam onto the varying portion of the target via the bulb coating.

- 24. The method of claim 23, wherein moving the X-ray bulb comprises rotating a CT gantry to which the X-ray bulb is attached.
- 25. The method of claim 23, wherein moving the X-ray bulb comprises moving the X-ray bulb along a tomosynthesis imaging trajectory.
- 26. The method of claim 23, further comprising detecting the X-rays on one or more detector arrays.
- 27. The method of claim 23, further comprising generating one or more projection images based upon signals produced by the one or more detector arrays in response to the detected X-rays.
  - 28. A method for irradiating a volume, the method comprising:

sequentially aiming a laser beam at each of a plurality of X-ray bulbs differentially positioned relative to a volume to be imaged, wherein each X-ray bulb comprises a target configured to rotate about an axis such that a varying portion of the target passes through a focal point of a focusing surface formed by a bulb coating; and

generating an X-ray producing plasma in each X-ray bulb by focusing the laser beam onto the varying portion of the respective target via the bulb coating when the laser beam is aimed at the respective X-ray bulb.

- 29. The method of claim 28, wherein the volume to be imaged comprises a tomosynthesis imaging volume.
- 30. The method of claim 28, wherein the volume to be imaged comprises a CT bore volume.
- 31. The method of claim 28, wherein the plurality of X-ray bulbs are positioned generally around at least a portion of the volume to be imaged.
- 32. The method of claim 28, wherein the plurality of X-ray bulbs are positioned at substantially equal intervals about the volume to be imaged.
- 33. The method of claim 28, further comprising detecting the X-rays on one or more detector arrays.
- 34. The method of claim 33, further comprising generating one or more projection images based upon signals produced by the one or more detector arrays in response to the detected X-rays.
  - 35. A method for generating X-rays, the method comprising: rotating a target within an X-ray bulb; focusing a laser beam onto a focal point through which the target rotates; and

indexing the target to raster the focal point such that the focal point successively focuses on a previously unexposed portion of the target.

- 36. The method of claim 35, wherein focusing the laser beam comprises focusing the laser beam upon an interior bulb coating which focuses the laser beam onto the focal point.
- 37. The method of claim 35, wherein the focal point is rastered radially along the target.
- 38. The method of claim 35, further comprising moving the X-ray bulb about a volume to be imaged.